Accelerator Systems Division Highlights Ending November 12, 2004

ASD/LANL: Warm Linac

LANL has a team of 3 people supporting RF-Power installation at ORNL and will continue this support for every week except the weeks of Thanksgiving and Christmas through the end of January.

ASD/JLAB: Cold Linac

ASD/BNL: Ring

Talks and dry runs were finalized for next week's DOE Review.

The Ring Diagnostics Production Plan (Rev 02) is undergoing another round of revisions related to "Acceptance Criteria".

ELS Vacuum Chamber: Alpha Magnetics reported that Global Plating (Fremont, CA) has delivered the Ni plated circulating beam pipe. Apparently, Global was able to "feather" the ridge at the stainless-to-steel transition so that it blended cleanly into the non-plated stainless without flaking. Jim Rank will travel to California next week to inspect the vacuum chamber and to observe the production status at Alpha Magnetics and Allied Engineering.

The extraction kicker modules that were tested to full power have been removed from the vacuum chamber and inspected. Dick Hseuh reported that the NiT coating looked fine after the 3.5 hr. full power test.

The first 36Q85 magnet has been set in the Mag Measure test station. Connections (power, water, interlocks and instrumentation) were completed. The measuring coil has been installed and surveyed. Testing will begin next week.

Chicane #1, the injection septum magnet, the injection septum spare and their support stands will be shipped to SNS/OR next Tuesday (November 16).

Delivery of the next shipping container (long injection kicker magnet and RF equipment) has been rescheduled for the week of November 29. Shipping crates are being made for RTBT vacuum components.

Controls

Installation

Craft Snapshot 11/09/04

ASD productive craft workers	**57.0**
Foremen (Pd by 15% OH)	5.0
AMSI management (Pd directly)	3.0
TOTAL AMSI WORKERS	65.0
Less WBS 1.9, 1.2 etc	**4.0**
Less absent	**0.0**
TOTAL PD BY ASD/ORNL DB WPs	**53.0**

Accelerator Physics

Preliminary results are beginning to emerge from the radiation model calculations for the end of the RTBT. One conclusion is that the concrete shielding planned to go between quadrupole magnets Q28 and Q29 will not be necessary. However, it is likely that additional shielding above and between the magnets will make a substantial improvement to the dose rates at the magnet utility connections.

We now have global coordinates for the HEBT magnets, including the dipole correctors.

Operations

Ion Source

We have prepared a 21–slide presentation "H- source progress and results" for next week DOE review.

Checking through the logbook we found an ion source availability of 98.6% for the DTL3-6 and CCL1-3 commissioning. The biggest problem (1.1% downtime) was the water leak of September 20, which is believed to be caused by a material defect, and therefore no reoccurrence is expected. The rest of the downtime was caused by numerous 2 MHz trips (0.1%), a breakdown in the primary 2 MHz power connection (0.07%), a trip of IG5 on September 19 (0.05%), and a request to connect chopper control cables to monitor the chopper performance (0.04%). We do not fully understand the cause of the 2MHz trips, but we do have plans to investigate the RF breakdown. We plan to install a second ion gauge that should prevent future trips. We also plan to modify the configuration so that chopper diagnostics no longer requires the ion source to be locked out.

Syd Murray completed a hardwired valve control system that closes all valves when the pressure exceeds a certain set point. An interlock override allows for the pump down when the pressure is high. The override will automatically drop out when the pressure drops below the set point. That mitigates most risks associated with future in-vacuum water leaks.

Survey and Alignment

S&A aligned a High Beta Cryomodule just downstream of the transfer line Tee so "U Tube" measurements could be taken by the Cryo group for fabrication purposes. This same cryomodule will then be moved just upstream of the Tee where again S&A will align it into position. The Cryo group will then be able to record "U Tube" measurements for fabrication purposes. This week we also completed the rough set of cryo-module in HB 6. T

The alignment of the first warm section was completed in the pre-alignment area. The assembly was then transported to its final tunnel position where it was aligned to its global location. . The laser/optics box and beam pipe alignment was completed on the first warm section before the warm section was installed in its' final position (between MB03 and MB04). We are currently aligning magnets and the laser/optics box on the raft of a second warm section.

The RTBT collimator base locations were calculated and laid out last week. This week, with after the drilling of the bolt holes and installation of base plates, the plates were set in elevation. Next step is grouting.
On Wednesday and Thursday we ran the monthly RTBT subsidence campaign. Doug has the data. The laser tracker from Brookhaven was set and is ready to be checked out.

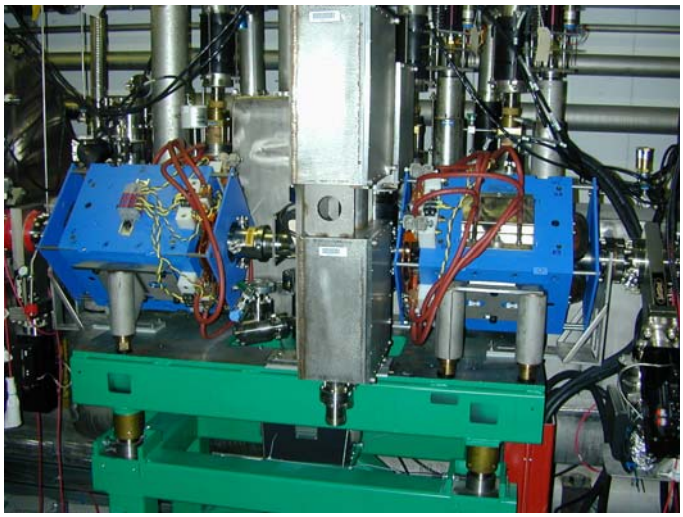
Our monthly RTBT monthly deformation monitoring campaign was also completed. The results will be available early next week.

S & A has received a substantial amount of data needed for the layout of injector kicker magnets. Once we have completed the preparation of our data, we will layout the bolt hole patterns in the Ring.

S & A is also continuing HEBT and Ring alignment when resources are available.

Mechanical

This week we installed a warm section into Slot 3 of the SCL. The warm section for Slot 4 is in the tunnel and being aligned. We have also started mapping more 8Q35's. Also, we have moved our warm section assembly area to the area next to the clean room.



Electrical Group

Modulators:
Check out started on SCL ME-4. Installation started on SCL ME-5.

Power Supplies:
Ring Corrector supplies installed.

Electrical Installation:
Linac – Working in SCL ME4 and ME5 areas. Started cable tray installation in SCL ME6 area.
Ring – Magnet cable terminations.

Other: Research mechanics and technicians
Provided electrical outlets for SCL warm section cleaning area
Dressed cables for SCL MB3 module
Modified Variable Frequency Drive for RCCS by adding filter inductors to output of breaker
Moved group technical area from storage hut to CLO
Installed grounding wires and bus in racks in CHL
Grounded Ion Pumps in Front End Building
Fixed junction Box covers in the CHL
Tightened electrical bushings on CHL pump skids
Pulled cables in the Front End Building for the controls group

HPRF

We have resolved the remaining Ring cable problems. All cable required for system installation is now on-hand.

Chip Pillar, LLRF Engineer, spent this week at BNL working with Kevin Smith on running the station at BNL on the 2nd harmonic and transferring LLRF software information.

LLRF

Cryo Group

- 14 Utubes left to built
- 50% dummy cryomodule
- Pumping and backfilling the 2KCold Box to be able to leak checking it

- Rearranged major Utubes in the CHL(2) and add new ones(4) to able to run 2KCB
- Support clean room
- Support CM installation in the tunnel
- Prepare Warm Compressors for the run

Beam Diagnostics

BPM:
Tests were performed on several BPM electronics. With additional calibration, the linac electronics can be used for time of flight measurements. We will work to implement this next week so that tests can be performed when beam returns.

Dbox:
The microchannel plate mounting scheme was modified to assure that it does not short out. A 50 mJ Q-switched laser was repaired and should be ready for tests next week.

Loss monitors:
Improved AFE chassis were installed in the SCL. The VME crates in HEBT continue to be populated.

Miscellaneous:
At this week's group meeting, he software team presented plans for the coming year. They also demonstrated some of their recent work.
The device tracking database was updated and status reports were run so that this information is available for the DOE review.
The web interface for the global database now allows for text entries associated to equipment ID.
Two diagnostics talks for the DOE review were prepared and presented at the dry run.
The planned trip to BNL was cancelled due to holiday/vacations at BNL.
The ring production plan was revised to included updated acceptance criteria.